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UNITED STATES DEPARTMENT OF AGRICULTURE

Number 34.¹

February, 1917.

DOCTOR HOWARD VISITS FLORIDA AND GEORGIA STATIONS.

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Doctor Howard left Washington on the 5th of February, and visited the field station at Orlando, studying with Mr. W. W. Yothers the effects of the freeze of February 3rd on the orange crop and the orange trees and on the insects of the orange. He also consulted with Mr. J. E. Graf, who has established a station at Plant City; and later visited Thomasville, Ga., where Mr. Geo. D. Smith is studying cotton insects, stopping at Atlanta on his return to Washington, for consultation with Mr. E. L. Worsham concerning cooperative work in Georgia.

C. O. WATERHOUSE.

Those of us who are interested in Coleoptera, or who have visited the British Museum of Natural History, will greatly regret to learn that Mr. C. O. Waterhouse, for many years Assistant Keeper of the British Museum, died on February 4th, at the age of seventy-three years.

THE MOSQUITO MONOGRAPH COMPLETED.

The completion of the Carnegie Institution "Monograph of the Mosquitoes of North and Central America and the West Indies" is in sight! The final proofs, including the index to the last volume, have been read, and the Institution believes that the final volume will be ready for distribution by April 15. It is of interest to note that the indices to Volumes 3 and 4 are combined in Volume 4, Volume 3 carrying no index. The pagination of Volumes 3 and 4 is continuous.

PRINTING FUND.

The allotment to the Bureau for the printing of Department bulletins and job printing is practically exhausted. The small fund remaining will be used for the publication of a very few bulletins which it may be necessary to issue under emergencies.

The cost of printing Farmers' Bulletins comes out of a special appropriation which cannot be used for any other class of printing. The Bureau's allotment for Farmers' Bulletins still shows a large balance. Manuscripts suitable for publication as Farmers' Bulletins are therefore greatly desired and should be submitted for publication without delay.

AN ILLUSTRATION OF THE IMPORTANCE OF QUARANTINE
AGAINST INJURIOUS INSECTS.

Early in 1914, Mr. E. C. Green an American engaged in the encouragement of cotton culture by the Brazilian Government made a careful survey of the cotton belt of Brazil. He was looking especially for the boll weevil and the pink bollworm.

¹ FOOTNOTE: The January number was indicated as No. 34, in error. Recipients of the Monthly Letter will change the January number to read 33 in order that there may be no conflict of numbers.

Neither insect was found in the course of considerable travel and extensive examinations of seed. Late in 1916 Mr. Green made another trip over the same territory and found that the pink bollworm was generally and thoroughly established. The way in which the insect was introduced is clear: In 1913 the Brazilian Government agitated the cultivation of Egyptian cotton in that country. An agent was sent to Egypt and large quantities of seed were shipped to Brazil. No precautions were taken as to the seed obtained and it was all admitted to Brazil without fumigation or other treatment. The Brazilian Government has inspectors located in every state capital. The seed was distributed to these inspectors and in turn by them to local representatives. This was probably as thorough a method of disseminating an insect as is possible. The Brazilian Government now realizes what has been done and various senators seriously consider an enactment requiring the burning of all the cotton fields in the Republic.

SOLENOPSIS INTERFERES WITH REARING EXPERIMENTS IN TEXAS.

Mr. D. C. Parman writes that he is having very serious trouble with Solenopsis. This ant has been a serious obstacle in the way of all of the rearing experiments at Uvalde, Texas, but according to his reports it is much worse this year than ever before. He says that there is a large bed heavily infested and that tunnels have been traced as far as 150 yards in some directions. I am wondering if any one in the bureau has had any experience in the control of this ant under such conditions and if so should like to have their experience. [Signed] F. C. Bishopp.

CONTROLLING THE COTTONY CUSHION SCALE IN NEW ORLEANS.

The November Monthly Letter gives a short account of a citizens' meeting at Tulane University in New Orleans to consider a campaign against the cottony cushion scale. The committee appointed by the president of the Academy of Sciences, under whose auspices the meeting was called, presented the matter to Mayor Behrman of New Orleans, Director Dodson of the Experiment Stations, and Mr. Alexander, in charge of the State Conservation Commission, and urged sufficient appropriations for a campaign in rearing and distributing the Australian lady beetle, *Novius cardinalis*. The result was that the city commission agreed to contribute \$2,500 in cash and move a greenhouse from a property recently purchased to a convenient situation for the winter rearing of the lady beetles. Prof. Dodson, for the Experiment Stations, contributed \$500, and an equal amount was obtained from the Conservation Commission, while the State Government appropriated \$2,500, making available the total sum of \$6,000. The greenhouse has now been erected at the Sugar Experiment Station in Audubon Park, which seemed the most suitable place for the work. The rearing of the lady beetles was begun last summer by Mr. E. R. Barber, and is still in his hands, an appeal having been made for an expert by Mayor Behrman to Doctor Howard and Secretary Houston. Specimens of *Novius* have been obtained from Mr. Harry S. Smith in California and Mr. A. C. Mason in Florida, as well as scales infested with *Cryptochaetum* (*Lestophonus*) *monophlebi* from Mr. Smith. Several colonies of lady beetles have been started, and with the aid of the greenhouse many thousands should be obtained in the near future. [T. E. Holloway]

FURTHER NOTES ON PRESERVATION OF INSECT COLLECTIONS.

In the December number of the Monthly Letter of the Bureau appeared an interesting note from Mr. T. S. Wilson concerning the protection of the insect collections.

At this Station we have adopted Mr. Wilson's suggestion of melting naphthalene and pouring it into the lids of Schmidt boxes, finding it much more practicable than the use of naphthalene cones which frequently "go adrift" and do much damage to pinned specimens.

At this Station we use for storage purposes great numbers of cigar boxes and we find that the best method of preventing the ingress of any "Museum pests" is to brush melted paraffin about corners and edges of boxes used for such purposes. We have successfully stored large quantities of Entomological material and find that after fastening down the lid with a tack that the melted paraffin brushed about the corners of the boxes successfully protects the material. [Signed] Wm. B. Turner, Hagerstown (Md.) Field Station., Feb. 10, 1917.

A DIRECTORY OF WORKERS IN HEMIPTERA.

During February a circular letter and data blank was sent to all entomologists in this country known to be particularly interested in Hemiptera, the object being to get together a directory of the workers within the order, listing their projects in hand and past publications. To date more than 30 blanks have returned with detailed data. If any field men connected with the Bureau, or otherwise, are at present engaged in any problem — economic, biologic, or systematic — relative to Hemiptera and have not received a blank to fill in they will be conferring a favor by sending data under the following headings to Edmund H. Gibson, Div. of Insects, U. S. National Museum, (a) Name; (b) Address; (c) Position and institution affiliated with; (d) Character of work; (e) Problems in hand or expecting to undertake; (f) List of publications.

WANTED: COCCINELLID PARASITES.

A study is being made of *Epomphaloides minutus* How., a chalcidid parasite of Coccinellids, which so far has been reared by the writer only from species of the genus *Coccinella*. If field men will send definite records of the occurrence of this parasite, or any other chalcidid parasites of Coccinellids, together with the name of the host, such information will be greatly appreciated. Parasitized material (the chalcidid parasitizes the larvae and pupae of the Coccinellids), or reared specimens of the parasites, in case these have not been determined, are also desired. (Address: E. J. Newcomer, General Delivery, Portland, Oregon).

OF VALUE TO FIELD WORKERS.

The following publication has recently been issued by the Department of Agriculture: "List of Workers in Subjects Pertaining to Agriculture and Home Economics in the U. S. Department of Agriculture and in the State Agricultural Colleges and Experiment Stations". This is revised and corrected to January 1917, and contains a double index: (1) Index for the Department of Agriculture and (2) Index for Colleges and Experiment Stations. Application should be made to the Chief of the Division of Publications.

BUREAU VISITORS.

Dr. Edith M. Patch, Entomologist, Maine Agricultural Experiment Station, Orono, Maine. Prof. Geo. A. Dean, State Entomologist, Manhattan, Kansas. Prof. Georges Maheu, Provincial Entomologist, Quebec, Canada.

CORRECTION NOTICE.

In compiling the last issue of the Monthly Letter of the Bureau of Entomology (January 1917), the name, Dr. Chas. H. T. Townsend, Entomological Assistant, was inadvertently omitted from the scientific staff and should have appeared under that heading on page 15.

PUBLICATIONS ISSUED SINCE JANUARY 1, 1917.

Journal of Agricultural Research.

- K-49: *Sorosporella uvella* and its occurrence in cutworms in America, by A. T. Speare.
K-50: *Tetrastichus bruchophagi* Gahan: A recently described parasite of *Bruchophagus funebris*, by T. D. Urbahns.

Department Bulletins.

416. The red spider on cotton, by E. A. McGregor and F. L. McDonough.
427. The potato tuber moth, by J. E. Graf.
431. Sacbrood, by G. F. White.
436. The desert corn flea-beetle, by V. L. Wildermuth.
437. Flat-headed borers affecting forest trees in the United States, by H. E. Burke.

Farmers' Bulletins.

778. Powder-post damage by *Lyctus* beetles to seasoned hardwood, by A. D. Hopkins and T. E. Snyder.
789. Mushroom pests and how to control them, by C. H. Popenoe.

A LIST OF ENTOMOLOGICAL CONTRIBUTIONS TO THE JOURNAL OF AGRICULTURAL RESEARCH, NOT ORIGINATING IN THE BUREAU OF ENTOMOLOGY.

- Winter Spraying with Solutions of Nitrate of Soda. By W. S. Ballard. Journal of Agricultural Research, Vol.I, Febr. 16, 1914, pp.437-444. G-14.
Observations on the Life History of *Agrilus bilineatus*. By Royal N. Chapman. Jour. Agric. Res. Vol.3, Jan. 15, 1915, pp.233-294. Minn.-2.
Two Clover Aphids. By Edith M. Patch. Jour. Agric. Res. Vol.III, Feb. 15, 1915, pp.431-433. Maine-3.
Influence of Soil Moisture upon the Rate of Increase in Sugar-beet Root-louse Colonies. Jour. Agric. Res. Vol.IV, June 15, 1915, pp.241-250. Mont.-1. By J. A. Parker.
Cherry and Hawthorn Sawfly Leaf Miner. By P. J. Parrott and B. B. Fulton, Vol.V, Dec. 20, 1915. pp.519-528. N.Y. (Geneva)-4.
Observations on the Life History of the Cherry Leaf Beetle. By Glenn W. Herrick. Jour. Agric. Res. Vol.V, Febr. 14, 1916. pp.943-950. N.Y. (Cornell)-2.
A New Spray Nozzle. By C. W. Woodworth. Jour. Agric. Res. Vol.V, March 20, 1916. pp.1177-1182. Cal.-4.

- Life History and Habits of Two New Nematodes Parasitic on Insects. By J. H. Merrill and A. L. Ford. Jour. Agric. Res. Vol.VI, April 17, 1916, pp.115-127. Kans.-2.
- Ornix geminatella, the Unspotted Tentiform Leaf Miner of Apple. By L. Haseman. Jour. Agric. Res. Vol.VI, May 22, 1916, pp.289-296. Mo.-1.
- Observations on the Life History of the Army Cutworm, *Chorizagrotis auxiliaris*. By R. A. Cooley. Jour. Agric. Res. Vol.VI, Sept. 4, 1916, pp.871-881. Mont.-3.

A GUIDE TO THE PUBLICATIONS OF THE DIVISION AND BUREAU OF
ENTOMOLOGY FROM 1863 TO 1917, WITH REFERENCES.

PUBLICATION:	DESIGNATION AND YEARS PUBLISHED:	WHERE AVAILABLE:
Reports of Entomologist	In Ann. Repts. Comr. Agr. 1863 to 1880 incl.	Apply to Supt. Docs. Govt. Ptg. Off., Wash., D.C. for Price List #41. See also Cir.76, Bu. Ent.
ditto	In Ann. Repts. Dept. Agr. 1880 to 1916.	ditto
Bulletins, OLD SERIES:	Nos.1 to 33 incl.complete. 1883 to 1895.	See private lists of 2nd hand book dealers.
Bulletins, NEW SERIES:	Nos.1 to 127,incl.complete. 1896 to 1913. [Bull.83 is complete in one part.]	See Cir.76,Bu.Ent. Also Price List 41,Supt.Docs. Govt. Ptg. Office.
Circulars, 1st SERIES:	Nos.1 to 40 incl.complete. 1885 to 1887.	These were mostly single Sheets.Not now available from any source.
Circulars, 2d SERIES:	Nos.1 to 173,incl.complete. 1891 to 1913. Index, 1-100, completed. Index, 101-173, in preparation.	Apply by number to Div. Publ.U.S.Dept.Agr. See also Price List 41, Supt. Docs. G.P.O.
Bulletins, TECHNICAL SERIES:	Nos.1 to 27,incl. 1895 to 1914. (Complete except indexes to Bulls. 16, 17, 20)	Some late numbers to be had by applying to the Div.Publ.U.S.Dept.Agr. See also Price List 41, Supt.Docs. See Private Lists of Book dealers for early numbers.
Special Reports:	Bibliography of the more im- portant contributions to Ameri- can economic entomology. 1889 to 1905.	For sale only through private lists of Ameri- can and European Book dealers.
Reports U.S.Entomological Commission:	Nos.1 to 5,incl.complete. 1878 to 1890.	See Price List 41, of Supt. Docs. Also see lists of book dealers.

PUBLICATION:

DESIGNATION AND YEARS PUBLISHED:

WHERE AVAILABLE:

Bulletins, U.S. Entomological Commission:	Nos. 1 to 7, incl. Complete. 1877 to 1881.	For sale through lists of private dealers.
Insect Life:	Vols. I to VIII and Index. 1888 to 1897, incl. Complete.	See Price List 41, Supt. Docs. See also lists of private book dealers.
Farmers' Bulletins: (Relating to entomology)	[Included in a miscellaneous series numbered from 1-900.] 1892 to 1917, incl.	See Price List 16, 9th Ed. Supt. Docs. See Div. Publ. U.S.D.A. List of Farmers Bulls.
Bulletins, U.S. Dept. Agr. (Known as DEPARTMENT BULLETINS.)	[Included in a miscellaneous series numbered from 1-550] 1913 to 1917, incl.	See Div. Publ. U.S.D.A. "List of Publications issued since July 1, 1913". See Price List Supt. Docs.
Yearbook Articles: (Relating to entomology):	[Not all Yearbook articles were issued as Separates.] 1895 to 1917, incl.	See Circ. 76, Bu. Entom. See Yearbooks inclusive.
Miscellaneous Reports of the Div. Entomology, etc.	[Various titles; not now available.] 1879 to 1909, incl.	See Circ. 76, Bu. Entom.
Entomological Contributions to Jour. Agric. Res.	(Nos. K-1 to K-51). 1913 to 1917, incl.	Separates not for sale. See Jour. of Agr. Res. (Copies sent weekly).
Entomological contributions as Circulars of the Office of Secretary.	Nos. 51, 55, 61. 1915 to 1916.	Apply to the Div. Pubs. U.S. Dept. of Agric. See Price List 41, Supt. Docs.
Entomological contributions published as Reports, Office of Secretary.	Nos. 99, 101, 102, 107, 108. 1915 to 1916.	Apply to Div. Pubs. U.S. Dept. Agric. See Price List 41, Supt. Docs.
"E" numbers. (Circular matter pertaining to activities of Bur. Entom.)	Nos. 1 to 90.	Not available for distribution.

FOR REFERENCE CONSULT:

Price List 16, 9th Ed., "Farmers Bulletins". Address Supt. of Documents, Govt. Ptg. Off., Washington, D. C.

Price list 41, 6th Ed., "Insects", Address Supt. Documents, Govt. Ptg. Office, Washington, D. C.

Circular No. 76, Bureau of Entomology "List of Publications of the Bureau of Entomology". [Discontinued in 1910.]

Division of Publications, U.S. Dept. Agr., "List of Publications issued since July, 1, 1913".

Division of Publications, U.S. Dept. Agr., See "Monthly List". (Will be furnished by Division of Publications, on request.)

LIST OF DEALERS IN ENTOMOLOGICAL AND NATURAL HISTORY LITERATURE:

Francis Edwards, High Street, Marylebone, London. E.C.
Geo. Winter, 52 Charing Cross Road, London, W.C.
Cadmus Book Shop, New York City, New York.
John D. Sherman, 24 Claremont Avenue, Mount Vernon, N.Y.
Lowdermilk & Co., 1210 F Street, N.W., Washington, D.C.
Philip Dowell, Port Richmond, New York.
The Franklin Book Shop, 920 Walnut Street, Philadelphia, Pa.

LIBRARY

Miss Mabel Colcord, Librarian.

NEW BOOKS.

- Anderson, John. Observations and experiments bearing on "Isle of Wight" diseases on hive bees. By John Anderson and John Rennie. (Proc. Royal physical society of Edinburgh Session 1915-1916, v.20, pt.1, p. 23-61, pl. 1)
- Berattelse öfver skadeinsekters upptradande i Finland Ar 1914, utgifven af Walter Linnaniemi. Helsingfors, 1916. 74p.
- Berlese, Antonio. Gli insetti. v.2, fasc. 15-16, p.433-480. Milan, 1916.
- Fabre, J.H.C. The life of the caterpillar... translated by Alexander Teixeira de Mattos. N. Y. 1916. 376p.
- Kimball, H. H. The shading effect of wire insect cages. (Monthly weather review, September, 1916. v.44, p.501-506. illus.)
- Marchal, Paul. Les sciences biologiques appliquees a l'agriculture et la lutte contres les ennemis des plantes aux Etats-Unis. Paris, 1916. 390p. illus.
- Report of the Commission of enquiry concerning the coconut beetle in Samoa (*Oryctes nasicornis*) Malua, 1916. 60p. Commission: Charles Roberts, Cecil Vine Allom, Eduard Duesterdieck and Robert Mackenzie Watson. At head of title: British military occupation of Samoa.
- Tothill, J. D. The ancestry of insects with particular reference to Chilopods and Trilobites. (Amer. jour. science v.42, p.373-387, November, 1916)
- Waterston, James. Fleas as a menace to man and domestic animals; their life history, habits and control. London, 1916. 20p. (British Museum (Natural history) Economic series No. 3)
- Rayment, Tarleton- Money in bees in Australasia. London and Melbourne, 1916. 298p.

BEE CULTURE
E. F. Phillips, In Charge.

Kennith Hawkins spent three weeks in Texas during the month attending meetings of county agents. At the close of this work he left for Arkansas and Oklahoma for similar work.

E. F. Phillips attended the meeting of the Colorado Beekeepers' Association at Fort Collins on January 18 and 19. At the close of this meeting he took a trip through New Mexico, and Arizona to study local beekeeping conditions and then went to the National Beekeepers' Association meeting at Madison, Wisc., on February 6, 7 and 8.

Geo. S. Demuth attended "Farmers' Week" at the Virginia Agricultural College, Blacksburg, Va., on February 19, 20 and 21, and gave addresses before county agents and visiting farmers on beekeeping.

C. E. Bartholomew has been made Secretary-Treasurer of the Tennessee Beekeepers' Association, his election to this office being for the purpose of placing the association in close touch with the Extension Work in Beekeeping.

DECIDUOUS-FRUIT INSECT INVESTIGATIONS
A. L. Quaintance, In Charge.

R. J. Fiske, who spent a few weeks in Washington preparing notes and manuscript on his codling moth investigations of the past season, has returned to Roswell, N.M. to resume his field studies.

F. L. Simanton has returned to Benton Harbor, Mich., to resume his investigations of orchard insecticides and spraying machinery.

Julian J. Culver, formerly attached to the gipsy moth parasite laboratory, Melrose Highlands, Mass. has been transferred to this office and will be assigned to duty at Fort Valley, Ga., where he will carry on dusting experiments in the control of peach insects.

FOREST INSECT INVESTIGATIONS
A. D. Hopkins, In Charge.

Mr. John M. Miller who recently visited Washington in the interest of Forest Entomology, returned to his station, Ashland, Oregon, on February 21.

SOUTHERN FIELD CROP INSECT INVESTIGATIONS
W. D. Hunter, In Charge.

B. R. Coad was in Washington for a conference early in the month. Shortly after his return to Tallulah he visited Kansas City for the purpose of conferring with manufacturers of dusting machinery.

G. D. Smith spent several days in Washington and then returned to his station at Thomasville, Ga.

Dr. W. V. King was also in Washington for a few days.

D. L. Van Dine and W. V. King made a trip to Bolivar County, Miss., during the month in company with Dr. C. C. Bass who has charge of the very extensive field experiments of the International Health Bureau in malaria control in that county.

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TROPICAL AND SUBTROPICAL INSECT INVESTIGATIONS
C. L. Marlatt, In Charge.

Mr. R. S. Woglum has recently given a resume of the results of his work on "mealybug control" before the meeting of the Lemon Men's Club at Los Angeles. It is expected that an elaboration of this paper will be shortly presented for publication as a Farmers' Bulletin. Mr. Woglum has also presented a preliminary report on the bamboo mite (*Stigmaeopsis celarius*), which has been damaging certain dwarf bamboos in Southern California. Sulphur control seems feasible and easy.

Dr. Howard, who has recently inspected Mr. Yothers's work in Florida, reports a very general and hearty appreciation of this work on the part of Florida citrus growers.

Mr. Pemberton's continued investigation of the parasitic control of the Mediterranean fruit fly (*Ceratitidis capitata* Wied.) in Hawaii confirms the suspicion that the later introductions of additional parasites of the fruit fly have been rather detrimental to parasitic control of this pest, due to the antagonistic relations of these parasites. In other words, the very efficient work of the *Opius humilis*, the first parasite to be successfully introduced, has been considerably retarded by the work of two species of *Diachasma*, also very efficient parasites but not coming up to the efficiency of the *Opius*, and by this antagonism actually reducing the total amount of parasitism effected by the *Opius* alone. This outcome has a very interesting and important bearing on all problems of parasitic introductions. Many other interesting features are being brought out in this study of the parasitism of the fruit fly, the favorable climate and the abundance of material giving an exceptional opportunity for the study of many phases of life history, habits and host interactions.

A fruit-fly survey is being organized for the West Indies and Central America. Dr. Back will be the leader in this survey, and perhaps one or more of the Washington assistants in this section may be detailed to take up special phases of the work for a few weeks each. It is hoped also to get the collaboration in this survey of a number of the official entomologists of the regions covered.

Mr. Horton is collaborating with the Federal Horticultural Board in the plant inspection work of the Department with headquarters in Washington.

TRUCK CROP AND STORED PRODUCT INSECT INVESTIGATIONS
F. H. Chittenden, In Charge.

The Mediterranean flour moth (*Ephestia kuehniella* Zell.) has attracted more attention during 1916 than for several years. It has made its appearance in warehouses and mills where it was not formerly found. The list of localities includes mostly small towns and cities. It is interesting that while formerly when this species was so very abundant nearly all millers knew the insect as the Mediterranean flour moth, at the present time they refer to it as "weevil," "flies," and infested material is seldom accompanied by other species of insects. One correspondent writes, "We are worried with a fly that lays eggs, apparently these hatch, and a worm gets in all elevators and spouts, causing a web which takes a very little time to fill cups and spouts, causing web in the flour, and interfering with the flow of the mill."

The Angoumois grain moth (*Sitotroga cerealella* Oliv.) is the subject of much complaint, especially in Pennsylvania, in York County, injury being chiefly to wheat.

The false chinch bug (*Nysius ericae* Schill.), according to recent information, has been one of the most injurious insects of the year, having been particularly destructive to sugar beets grown for seed in Colorado.

CHANGE OF ADDRESS

Mr. F. B. Milliken has changed his address from 214 N. Clarence Ave. to 2007 W. Douglas Ave., Wichita, Kansas.

CEREAL AND FORAGE INSECT INVESTIGATIONS W. R. Walton, In Charge.

NOTES FROM THE WELLINGTON FIELD STATION.

February 19, 1917.

Chinch bugs are rather plentiful in bunch grass. A great deal of roadside vegetation has been burned, but the normal burning, as it is usually conducted, is superficial and kills only a small percentage of the bugs.

The excessively dry weather has checked the wheat growth. At the present date a very few green blades are above the ground.

A general survey of Southern Kansas and Northern Oklahoma during the last week indicated that *Toxoptera graminum* does not occur in this locality.

Cutworms hibernating in this locality are less numerous than last year. Individual larvae are noticeably smaller than at this date last season, probably due to having been forced into hibernation fully a month earlier than in the winter of 1915-1916.

[Signed] E. O. G. Kelly.

